

- 1     1.     A tubular expansion tank, comprising:  
2             a pressure assembly having a passage fitting providing fluidic communication  
3                 between an interior and an exterior of the pressure assembly; and  
4             a water chamber assembly comprising:  
5                 a tube having first and second ends, wherein the first end has at least one  
6                 notch;  
7                 a cylindrical diaphragm disposed about the tube, wherein the notch  
8                 provides fluidic communication between an interior of the tube and an  
9                 interior of the diaphragm; and  
10                 a collar providing fluidic communication between the passage fitting and  
11                 the interior of the tube, wherein a first end of the diaphragm is sealingly  
12                 fitted to a portion of the collar.
- 13    2.     The tubular expansion tank of claim 1, further comprising a valve providing  
14             controllable fluidic communication between an exterior of the tank and a space  
15             between the pressure assembly and the diaphragm.
- 16    3.     The tubular expansion tank of claim 1, wherein the pressure assembly is metallic  
17             and comprises first and second domes sealingly affixed to one another, wherein  
18             the passage fitting is disposed in one of the first and second domes.
- 19    4.     The tubular expansion tank of claim 1, wherein a portion of the collar has an outer  
20             diameter that is approximately equal to an inner diameter of the diaphragm.
- 21    5.     The tubular expansion tank of claim 1, wherein the first end of the tube has a  
22             plurality of notches.
- 23    6.     The tubular expansion tank of claim 1, wherein the water chamber assembly  
24             further comprises a cap disposed at the second end of the tube to which a second  
25             end of the diaphragm is sealingly fitted.

- 1     7.     The tubular expansion tank of claim 6, wherein the cap is sealingly attached to the  
2           second end of the tube.
- 3     8.     The tubular expansion tank of claim 1, wherein the tank is adapted and  
4           constructed such that at least a middle portion of the diaphragm is configured to  
5           contact the tube at normal operating pressures.
- 6     9.     A tubular expansion tank, comprising:  
7           a metallic pressure assembly, comprising:  
8               first and second domes joined by a welded joint to form a chamber; and  
9               a fitting attached to the first dome and adapted and constructed for  
10              connection to a plumbing system and providing fluidic  
11              communication between an interior and an exterior of the pressure  
12              assembly; and  
13           a water chamber assembly, comprising:  
14               a tube having first and second ends;  
15               a cylindrical diaphragm disposed about the tube, wherein an interior of the  
16               diaphragm is in fluidic communication with an interior of the tube; and  
17               a collar providing fluidic communication between the fitting and the  
18               interior of the tube, wherein a first end of the diaphragm is sealingly  
19               affixed to a portion of the collar.
- 20    10.    The tubular expansion tank of claim 9, further comprising a valve providing  
21           controllable fluidic communication between an exterior of the tank and a space  
22           between the metallic pressure assembly and the diaphragm, wherein the valve is  
23           disposed in a wall of one of the domes.
- 24    11.    The tubular expansion tank of claim 9, wherein fluidic communication between  
25           the interior of the tube and the interior of the diaphragm is provided by at least  
26           one notch disposed in the first end of the tube.

- 1 12. The tubular expansion tank of claim 11, wherein the first end of the tube has a  
2 plurality of notches.
- 3 13. The tubular expansion tank of claim 9, wherein the tank is adapted and  
4 constructed such that at least a middle portion of the diaphragm is configured to  
5 contact the tube at normal operating pressures.
- 6 14. A preassembled water chamber assembly for an expansion tank, comprising:  
7 a tube having first and second ends;  
8 a collar disposed at the first end of the tube;  
9 a cap disposed at the second end of the tube; and  
10 a resilient diaphragm having first and second ends, wherein the first end of the  
11 diaphragm is sealingly fitted about the collar and the second end of the  
12 diaphragm is sealingly fitted about the cap.
- 13 15. The water chamber assembly of claim 14, wherein the first end of the tube has at  
14 least one notch providing fluidic communication between an interior of the tube  
15 and an interior of the diaphragm.
- 16 16. The water chamber assembly of claim 15, wherein the first end of the tube has a  
17 plurality of notches.
- 18 17. The water chamber assembly of claim 14, wherein the collar comprises two  
19 portions having different exterior diameters, and wherein the exterior diameter of  
20 one of the portions is the same as the exterior diameter of the cap.  
21
- 22 18. The water chamber assembly of claim 14, wherein the cap is sealingly attached to  
23 the second end of the tube.